

CLAIMS

What is claimed is:

1. An information notification system, comprising:
an input receptive of at least one of:
(a) activity information relating to at least one user activity category; and
(b) environment information relating to at least one user environment category;
a delivery module operable to determine a manner of notification delivery based on at least one of the user activity category and the user environment category; and
an output operable to communicate a notification to the user in accordance with the manner of delivery.
2. The system of claim 1, further comprising a user activity identification module operable to select at least one of plural, predefined user activity categories based on sensed user activity.
3. The system of claim 2, further comprising a user activity sensing module operable to sense user interaction with an electronic device via the electronic device.

4. The system of claim 2, further comprising a user activity sensing module operable to sense user interaction with a user environment via an electronic device proximate to the user environment and having a sensory function.

5. The system of claim 1, further comprising a user activity identification module operable to select at least one of plural, predefined user activity categories based on a time-specific user activity schedule and a current time.

6. The system of claim 1, further comprising a user activity identification module operable to select at least one of plural, predefined user activity categories based on learned user behavior patterns resulting from monitored user activity.

7. The system of claim 1, further comprising a user environment identification module operable to select at least one of plural, predefined user environment categories based on a user location and predefined environment categories associated in a datastore with at least one location.

8. The system of claim 7, further comprising a user location sensing module operable to sense the user location based on a global positioning system function of a portable electronic device of the user.

9. The system of claim 7, further comprising a user location sensing module operable to sense the user location based on a time-specific and location-specific user activity schedule and a current time.

10. The system of claim 7, further comprising a user location sensing module operable to sense the user location based on user interaction with an electronic device at a known location.

11. The system of claim 1, further comprising a user environment identification module operable to select at least one of plural, predefined user environment categories based on sensed environmental stimuli in proximity to the user.

12. The system of claim 1, further comprising a user environment identification module operable to select at least one of plural, predefined user environment categories based on learned environment behavior patterns resulting from monitored environment behavior.

13. The system of claim 1, wherein said delivery module is operable to determine the manner of notification delivery based on an information category relating to the notification.

14. The system of claim 13, further comprising an information categorization module operable to select at least one of plural information categories based on a priority of the notification.

15. The system of claim 14, wherein said delivery module is operable to determine the manner of delivery based on a comparison between the priority of the notification and a priority relating to a user activity.

16. The system of claim 13, further comprising an information categorization module operable to select at least one of plural information categories based on a confidentiality level of the notification.

17. The system of claim 13, further comprising an information categorization module operable to select at least one of plural information categories based on content of the notification.

18. The system of claim 13, further comprising an information categorization module operable to select at least one of plural information categories based on at least one medium of the notification selected from at least one of audio, video, text, image, vibration, sound, and light emission.

19. The system of claim 1, wherein said delivery module is operable to determine whether a manner of delivery is available that satisfies predetermined conditions relating to convenience, courtesy, timeliness, naturalness, and safety, wherein the manner of delivery relates to a medium of the notification in view of communication capabilities of eligible devices, wherein the medium is selected from at least one of audio, video, text, image, vibration, sound, and light emission.

20. The system of claim 19, wherein said delivery module is operable to determine that communication of an attention grabbing gesture satisfies the predetermined conditions.

21. The system of claim 20, wherein said input is further receptive of a user response to the attention grabbing gesture, and said delivery module is operable to determine whether a manner of delivery is available that satisfies the predetermined conditions based on the user response.

22. The system of claim 19, wherein said delivery module is operable to delay communication of the notification until the predetermined conditions are satisfied.

23. The system of claim 19, wherein said delivery module is operable to determine that communication of a full version of the notification satisfies the predetermined conditions.

24. The system of claim 19, wherein said delivery module is operable to determine that communication of a summarized version of the notification satisfies the predetermined conditions.

25. The system of claim 19, wherein said delivery module is operable to determine whether a manner of delivery is available that satisfies the predetermined conditions based on at least one communication capability of at least one device eligible to communicate the notification to the user.

26. The system of claim 1, further comprising a device eligibility assessment module operable to assess eligibility of devices to communicate the notification to the user.

27. The system of claim 26, wherein said delivery module is operable to select one of plural eligible devices to communicate the notification based on varying communication capabilities of the eligible devices.

28. The system of claim 27, wherein said delivery module is operable to assess communication capabilities of the eligible devices based on a user preference expressed by the user respective of communication via the eligible device.

29. The system of claim 26, wherein said device eligibility assessment module is operable to identify eligibility of a device based on observation of the user via a sensory mechanism of the eligible device.

30. The system of claim 26, wherein said device eligibility assessment module is operable to identify eligibility of a device based on detection of user interaction with the device.

31. The system of claim 26, wherein said device eligibility assessment module is operable to identify eligibility of a device based on knowledge of common location of the user and the eligible device.

32. The system of claim 1, wherein said delivery module is operable to determine the manner of notification delivery based on a manually expressed user preference relating to communication of the notification.

33. The system of claim 1, wherein said input is further receptive of a user response to a delivered notification, the system further comprising a user response assessment module operable to observe emotional content of the user response based on response characteristics relating to intensity, and to infer at least one of a favorable user reaction and an unfavorable user reaction to the delivered notification based on the emotional content, wherein said delivery module is operable to incorporate knowledge of a type of the user reaction into future communications with the user.

34. The system of claim 1, wherein said delivery module is operable to discard expired notifications based on a comparison between a time of expiration associated with the notification and a current time.

35. The system of claim 1, wherein said delivery module is operable to identify an older notification that has been superseded by a newer notification of similar type, and to discard the older notification.

36. An information notification method, comprising:

receiving at least one of:

(a) activity information relating to at least one selected user activity category; and

(b) environment information relating to at least one selected user environment category;

determining a manner of notification delivery based on at least one of the user activity category and the user environment category; and

communicating a notification to the user in accordance with the manner of delivery.

37. The method of claim 36, further comprising selecting at least one of plural, predefined user activity categories based on sensed user activity.

38. The method of claim 37, further comprising sensing user interaction with an electronic device via the electronic device.

39. The method of claim 37, further comprising sensing user interaction with a user environment via an electronic device proximate to the user environment and having a sensory function.

40. The method of claim 36, further comprising selecting at least one of plural, predefined user activity categories based on a time-specific user activity schedule and a current time.

41. The method of claim 36, further comprising selecting at least one of plural, predefined user activity categories based on learned user behavior patterns resulting from monitored user activity.

42. The method of claim 36, further comprising selecting at least one of plural, predefined user environment categories based on a user location and predefined environment categories associated in a datastore with at least one location.

43. The method of claim 42, further comprising sensing the user location based on a global positioning system function of a portable electronic device of the user.

44. The method of claim 42, further comprising sensing the user location based on a time-specific and location-specific user activity schedule and a current time.

45. The method of claim 42, further comprising sensing the user location based on user interaction with an electronic device at a known location.

46. The method of claim 36, further comprising selecting at least one of plural, predefined user environment categories based on sensed environmental stimuli in proximity to the user.

47. The method of claim 36, further comprising selecting at least one of plural, predefined user environment categories based on learned environment behavior patterns resulting from monitored environment behavior.

48. The method of claim 36, further comprising determining the manner of notification delivery based on an information category relating to the notification.

49. The method of claim 48, further comprising selecting at least one of plural information categories based on a priority of the notification.

50. The method of claim 49, further comprising determining the manner of delivery based on a comparison between the priority of the notification and a priority relating to a user activity.

51. The method of claim 48, further comprising selecting at least one of plural information categories based on a confidentiality level of the notification.

52. The method of claim 48, further comprising selecting at least one of plural information categories based on content of the notification.

53. The method of claim 48, further comprising selecting at least one of plural information categories based on at least one medium of the notification selected from at least one of audio, video, text, image, vibration, sound, and light emission.

54. The method of claim 36, further comprising determining whether a manner of delivery is available that satisfies predetermined conditions relating to convenience, courtesy, timeliness, naturalness, and safety, wherein the manner of delivery relates to a medium of the notification in view of communication capabilities of eligible devices, wherein the medium is selected from at least one of audio, video, text, image, vibration, sound, and light emission.

55. The method of claim 54, further comprising determining that communication of an attention grabbing gesture satisfies the predetermined conditions.

56. The method of claim 55, further comprising:
receiving a user response to the attention grabbing gesture; and
determining whether a manner of delivery is available that satisfies the predetermined conditions based on the user response.

57. The method of claim 54, further comprising delaying communication of the notification until the predetermined conditions are satisfied.

58. The method of claim 54, further comprising determining that communication of a full version of the notification satisfies the predetermined conditions.

59. The method of claim 54, further comprising determining that communication of a summarized version of the notification satisfies the predetermined conditions.

60. The method of claim 54, further determining whether a manner of delivery is available that satisfies the predetermined conditions based on at least one communication capability of at least one device eligible to communicate the notification to the user.

61. The method of claim 36, further comprising assessing eligibility of devices to communicate the notification to the user.

62. The method of claim 61, further comprising selecting one of plural eligible devices to communicate the notification based on varying communication capabilities of the eligible devices.

63. The method of claim 62, further comprising assessing communication capabilities of the eligible devices based on a user preference expressed by the user respective of communication via the eligible device.

64. The method of claim 61, further comprising identifying eligibility of a device based on observation of the user via a sensory mechanism of the eligible device.

65. The method of claim 61, further comprising identifying eligibility of a device based on detection of user interaction with the device.

66. The method of claim 61, further comprising identifying eligibility of a device based on knowledge of common location of the user and the eligible device.

67. The method of claim 36, further comprising determining the manner of notification delivery based on a manually expressed user preference relating to communication of the notification.

68. The method of claim 36, further comprising:

- receiving a user response to a delivered notification;
- observing emotional content of the user response based on response characteristics relating to intensity;
- inferring at least one of a favorable user reaction and unfavorable user reaction to the delivered notification based on the emotional content; and
- incorporating knowledge of a type of the user reaction into future communications with the user.

69. The method of claim 36, further comprising discarding expired notifications based on a comparison between a time of expiration associated with the notification and a current time.

70. The method of claim 36, further comprising:

- identifying an older notification that has been superceded by a newer notification of similar type; and
- discarding the older notification.

71. A device enrollment method for use with an information notification delivery system, comprising:

establishing communication with an enrolling device over a communications network;

receiving device characteristic information from the enrolling device relating to device characteristics including device type and input/output capabilities of the device;

registering the device characteristic information in memory;

transmitting an application programming interface to the enrolling device based on the device type that is operable to render the enrolling device compliant with notification delivery functionality of the notification delivery system.

72. The method of claim 71, wherein the application program interface causes the enrolling device to send its original notifications to the information notification delivery system.

73. The method of claim 71, wherein the application program interface causes the enrolling device to deliver notifications received from the information notification delivery system to users in accordance with instructions from the information notification delivery system.

74. The method of claim 71, wherein the application program interface causes the enrolling device to communicate captured sounds and images, user schedules, and device states to the information notification delivery system.

75. The method of claim 1, wherein the information notification system is at least one of:

- (a) maintained at a central location and adapted to register and employ plural devices; and

- (b) maintained on at least two compliant devices of plural compliant devices in a distributed fashion.

76. A method of operation for a device operable to perform information notification delivery in a convenient, courteous, timely, natural, and safe manner, comprising:

- receiving at least one of:

- (a) activity information relating to at least one selected user activity category; and

- (b) environment information relating to at least one selected user environment category;

- determining a manner of notification delivery based on the user activity category and the user environment category; and

- communicating the notification to the user in accordance with the manner of delivery.

77. The method of claim 76, further comprising making a determination whether a manner of notification delivery is available that satisfies predetermined conditions relating to at least one of convenience, courtesy, timeliness, naturalness, and safety, wherein the determination includes evaluating a majority of the following information notification delivery categories:

- (a) an attention grabbing gesture;
- (b) a notification summary; and
- (c) a full notification.

78. The method of claim 77, further comprising:
communicating an attention grabbing gesture to the user;
receiving user feedback in response to the attention grabbing gesture; and
making the determination based on the user feedback.

79. The method of claim 76, further comprising:
sensing user activity; and
selecting the user activity category based on the user activity.

80. The method of claim 76, further comprising:
- sensing environmental stimuli in a vicinity of the device;
 - sensing user collocation with the device; and
 - selecting the user environment category based on the sensed stimuli.